

HEALTH

Childhood Obesity

Weight gain beginning in childhood can lead to an enlarged heart by early adulthood, researchers reported in the November 22, 2004 issue of *Circulation: Journal of the American Heart Association*.

Researchers with the Bogalusa Heart Study followed 467 children for an average of 21.5 years. They found that adiposity (fatness) beginning in childhood is a consistent predictor of heart size in early adulthood. By adulthood, both body mass index (BMI – a measure of body fatness) and a high systolic blood pressure were independent predictors of left ventricular hypertrophy (LVH), an over-development of the left side of the heart that can lead to heart attack or heart failure.

The researchers conducted seven cross-sectional surveys of children aged 4–17 years, between 1973 and 1996. They conducted five surveys of the same group as young adults, aged 18–38 years. Participants' height, weight, blood pressure, cholesterol and triglycerides were measured every three or four years. During the last six months of 1996, the young adults (71 percent white, 39 percent male, average age 32) underwent echocardiography examinations to determine their left ventricular mass (a measure of heart size).

The researchers divided BMI measurements into quartiles with quartile I being the lowest BMI and quartile IV the highest. Increased average levels of left ventricular mass corresponded with increased BMI quartile as measured in childhood, adulthood and as a cumulative burden from childhood to adulthood. BMI values from 18.5 to 24.9 are considered normal; BMI from 25 to 29.9 is overweight; and BMI of 30 or greater is obese.

For white men, average BMI was 18.1 in childhood and 27.7 in adulthood. For white women, BMI was 18.2 in childhood and 26.1 in adulthood. Average BMI for black men was 17.7 in childhood and 27.4 in adulthood. For black women, BMI was 18.7 in childhood and 29.8 as adults. Average left ventricular mass in adulthood was 30.1 for white men, 31.3 for white women, 32.3 for black men and 35.9 for black women.

When BMI was analyzed in quartiles and compared to adult left ventricular mass index, BMI in the highest quartile in both childhood and adulthood correlated with the largest heart size in young adults.

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